

Stem 4–9 dm. high, erect, rather slender, somewhat pilose-hispid throughout, glandular-puberulent above, 4–11-flowered: basal leaves interruptedly pinnate, 1.5–3.5 dm. long, hispid below; the 3 approximate obovate terminal lobes shallowly lobed and coarsely dentate, the uppermost largest (5–9 cm. long, 4–8 cm. broad), with 4 to 6 unequal pairs of subopposite or scattered ovate lobes (0.5–4 cm. long) below; cauline 3-lobed or -parted, the lower short-petioled, the upper sessile, the leaflets obovate (or the uppermost lanceolate) sharply toothed, mostly 3–5.5 cm. long: stipules narrowly ovate sharply and coarsely toothed, 1–2 cm. long: peduncles purplish, slender, at first nodding, later becoming erect: calyx purplish, in anthesis 1–1.3 cm. broad, becoming larger in fruit, cleft half-way to base into deltoid-ovate acuminate strigose wide-spreading lobes, with linear-subulate alternating teeth (1 mm. long): petals 7 or 8 mm. long, bright yellow, suborbicular, obcordate, narrowed to short claws: filaments yellowish or purplish: carpels bristly below with ascending yellow-white hairs; the elongate deep-purple styles jointed above the middle, the upper plumose portion carmine: fruit not seen.—QUEBEC, boggy meadow by the St. Lawrence, Bic, July 6, 1905 (*Williams, Collins, & Fernald*): VERMONT, Mendon, July 16, 1898 (*W. W. Eggleston*).

GRAY HERBARIUM.

A HYBRID ASPLENIUM NEW TO THE FLORA OF VERMONT.

GEORGE E. DAVENPORT.

THE finding of a hybrid *Asplenium* at Proctor, Vermont, by Mr. G. A. Woolson of Pittsford Mills, is of more than ordinary interest, both on account of the accurately noted environment and because the fern although previously known as a European plant has never before been recorded in America. It is the *Asplenium Trichomanes* × *Ruta-muraria* of Ascherson & Graebner¹ of which several somewhat varying forms have been contrasted in parallel columns by Christ.² Mr. Woolson's account of his discovery gives the following details.

Passing over a ridge at Proctor, Vermont, he paused in an open space to see what was growing on and between the outcropping

¹ Synopsis der Mitteleuropäischen Flora, i. 79 (1896).

² Die Farnkräuter der Schweiz, 97, f. 15 (1900).

rocks. Here his attention was attracted by a clump of ferns with pinnae which appeared abnormal and he took specimens together with others of *Asplenium Ruta-muraria*, which were growing three feet from the clump in question. On closer inspection later Mr. Woolson suspected that the anomalous fern was the result of a cross between *A. Ruta-muraria* and *A. Trichomanes* and returning to the spot he "went on hands and knees" over practically all the neighboring ground in search of the other parent plant. The only species growing in abundance was *A. Ruta-muraria*, much of it young; but a few fruited plants were found not over a foot from the particular clump in question. About eighteen feet away there was some *Pellaea atropurpurea*, with a "touch of *Camptosorus* and *A. ebeneum*" but no *A. Trichomanes* in sight although the habitat appeared just right for that species. However, on following a dip in the ridge over another rise and down over the edge of a steep bank facing the north, Mr. Woolson found an abundance of *A. Trichomanes*, as well as a second lot under the shelving edge of a ridge a little more to the east. Either place was fully a hundred and twenty-five feet from the rock bearing the hybrid fern.

While admitting that the peculiar fern looks much like a hybrid between *A. Trichomanes* and *A. Ruta-muraria*, Mr. Woolson expresses doubt as to the power of the wind as a possible agency in transporting the spores of *A. Trichomanes* to such a distance and over such barriers.

But we know that the wind is capable of doing most extraordinary things, and it is always the unexpected that happens. So many instances of this have occurred in my own experience that I have long ago ceased to wonder at anything of the kind being brought about through the agency of the wind, and the fact of fern spores being swirled about and distributed into all manner of seemingly inaccessible places is not so great a source of wonderment to me as the facts of hybridization itself.

Ferns are constantly intermingling in vast numbers under conditions most favorable for interbreeding and producing a great diversity of variant forms, yet these forms are for the greater part readily referable to one or the other of well established genera and species. Seldom indeed do we find any that can be considered for an absolute certainty as hybrid combinations; such, however, seems to be the case in the present instance beyond any reasonable doubt, and the apparent

difficulty of wind-blown spores having reached the seemingly inaccessible niche where this hybrid fern was found was no greater than in some other instances of spore migrations previously recorded by me.

When first received the dual characters and resemblance of the newcomer to *A. Trichomanes* and *A. viride* impressed me with the possibility of its being a hybrid between those two species, but the absence of the latter from that section altogether led me to treat it provisionally as a form of *A. Trichomanes*. The later and fuller information subsequently received, however, led to a further investigation that enabled me to identify it properly through an admirable figure published by Dr. Christ (l. c.) of a somewhat larger form from Lugano.

Three forms of this hybrid, to which specific names had been given, were brought together under the present combination by Ascherson and Graebner in the work already cited, and these are arranged by Dr. Christ under comparative descriptions with his own account of the large form from Lugano.

The following brief diagnosis will, I think, sufficiently indicate the general characters of our Vermont plant. Sporophyte small with the habit of *A. Trichomanes*. Fronds 6 to 10 cm. long, elongate, lanceolate, broadest at base; stipe and lamina of nearly equal length, stipe and lower half of rachis brownish black as in *A. Trichomanes*, then green above as in *A. viride* (the young growing fronds wholly green), wingless; lamina pinnate with 7 to 8 pair of short-stalked pinnae, and an enlarged terminal one with shallow lobes on one or both sides, those below, to about the middle of the lamina, entire, the uppermost obovate, the lower ones broadening and becoming roundish ovate with cuneate bases, below the middle increasing abruptly in size, more or less lobed with rounded lobes, the second pair deeply lobed or 3-parted, the lowermost pair fully 3-parted with the upper basal lobe quite distinct. Margins crenulately denticulate. Sori short, becoming confluent and covering the lobes at maturity. Indusium irregularly denticulate. Proctor, Vermont, August 29, 1905, *G. A. Woolson*.

The essential characters of the parent plants are reproduced in their offspring as follows:—

1st. TRICHOMANES characters are seen in the brownish-black stipe the lower portion of rachis, and partially also in the shape of the upper pinnae.

2nd. RUTA-MURARIA characters are seen in the long stipes and

green upper portion of the rachis, the distant pinnae, and more especially in the 3 parted lower pinnae.¹

The dimensions of our plant fairly approximate those given by Ascherson and Graebner (l. c.), but the Lugano form described by Dr. Christ exceeds those dimensions by about one third, the fronds reaching a length of 15 cm. as seen in the fine figure published by that author.

Our plant, however, differs from the European forms already published in having the lower pinnae more deeply lobed or even divided, and this inclined me at first to treat it as a distinct form, but in view of the well known disposition on the part of hybrids to produce all manner of deviations, and the existence of certain other deviations in the European forms, it has seemed best to regard all such deviations as of minor importance and to recognize only the one combination.

Mr. Woolson is to be congratulated on his interesting discovery, which adds new evidence of the unity of the American and European fern floras. It should also be a spur to fern-students and encourage them to search carefully for other fern treasures that lie hidden awaiting only the advent of some keen eyed observer to bring them out into the light.

MEDFORD, MASSACHUSETTS.

SPIRANTHES OVALIS.

OAKES AMES.

IN 1840, Dr. John Lindley published the description of a new species of *Spiranthes* collected by Drummond in Texas and in allusion to the oval form of the inflorescence called it *S. ovalis*. From that time on the specific name was not taken up by American botanists and at present is not applied to any American species in our botanical publications. The explanation of this is perhaps simple, as *S. ovalis* is one of the rarest of the *Spiranthes* species which are natives of the United States, and as the description in Lindley's *Genera and Species of Orchidaceous Plants* is a wholly inadequate characterization.

¹A print from one of Mr. Woolson's specimens since seen, shows at least one of the lower pinnae not only with three distinct lobes, but with the outer lobe becoming again slightly 3-lobed.